

5/K/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2002 Institution of Electrical Engineers. All rts. reserv.

4851706 INSPEC Abstract Number: C9502-6120-020
Title: File system design for an NFS file server appliance
Author(s): Hitz, D.; Lau, J.; Malcolm, M.
p.235-46
Publisher: USENIX Assoc, Berkeley, CA, USA
Publication Date: 1994 Country of Publication: USA 372 pp.
Conference Title: Proceedings of USENIX Winter 1994 Conference
Conference Date: 17-21 Jan. 1994 Conference Location: San Francisco, CA, USA
Language: English
Subfile: C
Copyright 1995, IEE

...Abstract: network file access and because an appliance must be easy to use. This paper describes WAFL (Write Anywhere File Layout), which is a file system designed specifically to work in an NFS appliance. The primary focus is on the algorithms and data structures that WAFL uses to implement Snapshots, which are read-only clones of the active file system. WAFL uses a copy-on-write technique to minimize the disk space that Snapshots consume. This paper also describes how WAFL uses Snapshots to eliminate the need for file system consistency checking after an unclean shutdown.

...Identifiers: WAFL ; ...

... Write Anywhere File Layout ;
1994

5/K/2 (Item 1 from file: 647)
DIALOG(R)File 647:CMP Computer Fulltext
(c) 2002 CMP Media, LLC. All rts. reserv.

00539904 CMP ACCESSION NUMBER: CWK19930503S3834
Start-Up to Ship Unix File Server That Simplifies Setup and Maintenance
JOHN T. MULQUEEN
COMMUNICATIONSWEEK, 1993 , n 452, 25
PUBLICATION DATE: 930503
JOURNAL CODE: CWK LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: Local Area Networkss
WORD COUNT: 598

, 1993

... is cheaper to maintain and expand, he said.

FAS includes a proprietary file system called Write Anywhere File Layout, which can write data to disks much more rapidly than general purpose servers, according to...

5/K/3 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
(c) 2002 ProQuest Info&Learning. All rts. reserv.

00760569 94-09961
NFS toaster
Anonymous
UNIX Review v11n10 PP: 77-87 Oct 1993
ISSN: 0742-3136 JRNL CODE: UXR
WORD COUNT: 3451

...TEXT: drive is provided for booting from backup or installing software upgrades.

The FAServer uses a Write Anywhere File Layout (WAFL) file system. WAFL combines the physical disk space of the FAServer's multiple disks (seven is the current...

... is added to the pool of available space. This is a simple and effective policy. WAFL is designed to be more efficient and faster than a traditional UNIX file system. WAFL runs on top of RAID, which lets the FAServer continue to run without loss of...Network Appliance yielded the answer in a few hours. An accompanying white paper described the WAFL file system and RAID in more detail: One disk in the RAID level-4 array... space by starting that 10% of the space on the nonparity disks is reserved by WAFL to ensure good performance in block allocation strategies in the file system, much like the...

5/K/4 (Item 2 from file: 15)

Dialog
2 Oct 02

00697514 93-46735

FAServer file server cuts costs of Unix file services

Paul, Fredric

Network World v10n17 PP: 13, 16 Apr 26, 1993

ISSN: 0887-7661 JRNL CODE: NWW

WORD COUNT: 776

...TEXT: Control Protocol/Internet Protocol and NFS protocols.

FASware's most important components are the proprietary Write Anywhere File Layout (WAFL) system and Snapshot backup.

The WAFL file system treats the entire RAID system as a single partition, writing across all the...

...to make a "virtual copy" of the disk in a few seconds, he explained.

Since WAFL does not write over existing block of data, that virtual copy remains accurate until purged...

5/K/5 (Item 1 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2002 The Gale Group. All rts. reserv.

03664491 Supplier Number: 45175301 (USE FORMAT 7 FOR FULLTEXT)

FILE SERVER CHOICES PUZZLE USERS

UNIX News, p41

Dec, 1994

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 2073

... system on the RAID and can be used to make tape backups. Network Appliance's Write Anywhere File Layout file system is designed for use with arrays of big SCSI-2 drives using RAID...
19941201

5/K/6 (Item 2 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2002 The Gale Group. All rts. reserv.

03515988 Supplier Number: 44924750 (USE FORMAT 7 FOR FULLTEXT)

MTI OFFERS TWO ADDITIONS FOR ITS UNIVERSAL STORAGE ARCHITECTURE FOR
MIGRATION TO VMS AND UNIX

Computergram International, n2480, pN/A

August 16, 1994

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 355

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...network and supports up to 27Gb in a RAID 4 array, using a single large Write Anywhere File Layout file system that can write to the first available open disk block in the cylinder...
19940816

5/K/7 (Item 3 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2002 The Gale Group. All rts. reserv.

03085136 Supplier Number: 44201587 (USE FORMAT 7 FOR FULLTEXT)

NETWORK APPLIANCE CORP FASERVER CLUSTER

UNIX News, p42

Nov, 1993

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 495

... to two Ethernet interfaces.

The company's FASware software technology provides a real-time kernel, WAFL (Write Anywhere File Layout) file system, an online Snapshot backup facility that allows the user to easily retrieve data...
19931101

5/K/8 (Item 4 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2002 The Gale Group. All rts. reserv.

02858651 Supplier Number: 43849481 (USE FORMAT 7 FOR FULLTEXT)
NETWORK APPLIANCE ANNOUNCES A "NEW CLASS OF FILE SERVER"
Network Week, n73, pN/A
May 21, 1993
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 648

... FASware software includes a proprietary 80,000-line real-time kernel and an all-important Write Anywhere File Layout file system designed from the ground up to handle files up to 4Gb, and requiring...
19930521

5/K/9 (Item 5 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2002 The Gale Group. All rts. reserv.

02836005 Supplier Number: 43815112 (USE FORMAT 7 FOR FULLTEXT)
Start-Up to Ship Unix File Server That Simplifies Setup and Maintenance
CommunicationsWeek, p25
May 3, 1993
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 593

... is cheaper to maintain and expand, he said.
FAS includes a proprietary file system called Write Anywhere File Layout, which can write data to disks much more rapidly than general purpose servers, according to...
19930503

5/K/10 (Item 6 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2002 The Gale Group. All rts. reserv.

02824436 Supplier Number: 43796789
FAServer file server cuts costs of Unix file services
Network World, p13
April 26, 1993
Language: English Record Type: Abstract
Document Type: Magazine/Journal; Trade

ABSTRACT:

...drivers and Transmission Control Protocol/Internet Protocol and NFS protocol support. Also featured are its Write Anywhere File Layout system for writing across all RAID disks simultaneously and Snapshot backup for disk backup without...
19930426

5/K/11 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2002 The Gale Group. All rts. reserv.

07614096 SUPPLIER NUMBER: 16265667 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Enhance signs with U.S. vendor to sell NFS file server line. (Enhance Systems Inc inks deal with Network Appliance Corp to sell FAServer file servers) (Connectivity: Software)(Brief Article) (Product Announcement)
Computing Canada, v20, n22, p46(1)
Oct 26, 1994
DOCUMENT TYPE: Product Announcement ISSN: 0319-0161 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 82 LINE COUNT: 00006

The FAServer is a network-attachable, dedicated NFS file server. It uses a Write Anywhere File Layout file system and RAID implementation to provide average response times three times faster than a
...

19941026

5/K/12 (Item 2 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2002 The Gale Group. All rts. reserv.

07231841 SUPPLIER NUMBER: 15326800 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Network Appliance sets high-end network file system servers. (FAServer 450,

1300 and 1400) (Product Announcement)

Computergram International, CGI03230015

March 23, 1994

DOCUMENT TYPE: Product Announcement ISSN: 0268-716X LANGUAGE:

ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 417 LINE COUNT: 00031

... on the RAID and can be used to make tape back-ups. Network
Appliance's Write Anywhere File Layout file system is designed for
use with arrays of big SCSI-2 drives using RAID...

19940323

5/K/13 (Item 3 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2002 The Gale Group. All rts. reserv.

06497389 SUPPLIER NUMBER: 14150146 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Newcomer Network Appliance Corp to offer servers dedicated to offloading

Network File System (Company Profile)

Computergram International, CGI05130011

May 13, 1993

DOCUMENT TYPE: Company Profile ISSN: 0268-716X LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT

WORD COUNT: 698 LINE COUNT: 00057

... FASware software includes a proprietary 80,000-line real-time
kernel and an all-important Write Anywhere File Layout file system
designed from the ground up to handle files up to 4Gb and requiring...

19930513

5/K/14 (Item 4 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2002 The Gale Group. All rts. reserv.

03736673 SUPPLIER NUMBER: 07656905

WAFL plans still sketchy. (Worldwide American Football League) (Sports
inc.)

Rosenblatt, Richard

Sporting News, v207, n25, p53(1)

June 5, 1989

CODEN: SPONB ISSN: 0038-805X LANGUAGE: ENGLISH RECORD TYPE:

QUOTATION

WAFL plans still sketchy. (Worldwide American Football League) (Sports
inc.)

19890605

5/K/15 (Item 5 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2002 The Gale Group. All rts. reserv.

03121029 SUPPLIER NUMBER: 04676963 (USE FORMAT 7 OR 9 FOR FULL TEXT)

1986 was the year of the sale; new records set for stations and cable

systems. (television mergers)

Broadcasting, v112, p55(23)

Feb 9, 1987

ISSN: 0007-2028 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 25554 LINE COUNT: 02037

... Springs.

William E. Prettyman Jr., owned by WICO-AM-FM Salisbury, Md., and

WYUS(AM)- WAFL -FM Milford, Del., bought WEPM(AM)-WKMZ(FM) Martinsburg, W.
Va., for \$2 million from..

19870209

5/K/16 (Item 6 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB

(c)2002 The Gale Group. All rts. reserv.

02162085 SUPPLIER NUMBER: 03339556 (USE FORMAT 7 OR 9 FOR FULL TEXT)

The annual fifth estate awards issue; 8th annual compilation of national

awards in radio, TV and cable.

Broadcasting, v107, p39(17)

July 2, 1984

ISSN: 0007-2028 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 15715 LINE COUNT: 01419

... gathering. KLAQ(AM) Los Angeles * Overall member cooperation.
KMJ(AM) Fresno, Calif. * Spot news contribution. WAFL -FM

19840702

5/K/17 (Item 1 from file: 256)
DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.
(c)2002 Info.Sources Inc. All rts. reserv.

00067853 DOCUMENT TYPE: Review

PRODUCT NAMES: FAServer 400 (465283)

TITLE: Taking An Alliance View of NFS
AUTHOR: Amaru, Chris
SOURCE: Client/Server Today, v1 n3 p23(2) Jul 1994
ISSN: 1078-8565

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

REVISION DATE: 20001130

...s only function is to service NFS requests for data on its file systems.
Its Write Anywhere File Layout (WAFL) and an underlying RAID
subsystem let the product field NFS requests as fast as the more powerful
UNIX servers. The WAFL system lets the FAServer do Snapshots, read-only
clones of the active file system. The...
...request patterns. FAServer can restart quickly after a system crash,
while maintaining file system consistency. WAFL lets write operations
occur quickly anywhere on the disk, further improving write performance.
FAServer is...

1994

5/K/18 (Item 2 from file: 256)
DIALOG(R)File 256:SoftBase:Reviews,Companies&Prods.
(c)2002 Info.Sources Inc. All rts. reserv.

00062372 DOCUMENT TYPE: Review

PRODUCT NAMES: FASware 2 (502693)

TITLE: 'Appliances' Take Over File Server Role
AUTHOR: Simpson, David
SOURCE: digital news & review, v11 n6 p1(2) Mar 21, 1994
ISSN: 0739-4314

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

REVISION DATE: 20001130

...dedicated server appliance. Faserver runs under the recently enhanced
FASware 2 operating system. FAServer's Write Anywhere File Layout (WAFL)
file system is praised for its speed and optimization, reportedly
outperforming UNIX, by a comfortable...

1994

5/K/19 (Item 1 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01723357 SUPPLIER NUMBER: 16307495 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Next-generation file systems. (Storage & Retrieval)
Fiorito, Tony
DEC Professional, v13, n12, p64(4)
Dec, 1994
ISSN: 0744-9216 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 2268 LINE COUNT: 00171

... a RAID-4 array, and second, it uses a completely new file system
called the Write Anywhere File Layout (WAFL). Because the
designers at Network Appliance decided that this box would be a specialized
network...

19941200

5/K/20 (Item 2 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01722075 SUPPLIER NUMBER: 16271159 (USE FORMAT 7 OR 9 FOR FULL TEXT)
StingRay serves it up. (MTI Technology Corp's StingRay NFS 2.0 network file server) (Product Announcement)
Morrison, Kristine M.
DEC Professional, v13, n11, p14(1)
Nov, 1994
DOCUMENT TYPE: Product Announcement ISSN: 0744-9216 LANGUAGE:
ENGLISH RECORD TYPE: FULL TEXT; ABSTRACT
WORD COUNT: 523 LINE COUNT: 00040

...ABSTRACT: is loaded from the administrative host, and is quick to install. StingRay NFS uses the Write Anywhere File Layout (WAFL) system, which is integrated with RAID to simultaneously write to open blocks of disks across...

... so that a single drive failure will not interrupt the system. StingRay NFS incorporates the Write Anywhere File Layout (WAFL) system, designed by MTI. WAFL is integrated with RAID to simultaneously write to open blocks on disks across multiple cylinders. WAFL writes to the first available block to reduce the average transaction completion time. StingRay NFS...

19941100

5/K/21 (Item 3 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01650498 SUPPLIER NUMBER: 15344459
PC file-server power. (Network Appliance Corp.'s FAServer 400) (Hardware Review) (Evaluation)
Yager, Tom
Open Computing, v11, n5, p83(5)
May, 1994
DOCUMENT TYPE: Evaluation ISSN: 1072-4044 LANGUAGE: ENGLISH
RECORD TYPE: ABSTRACT

...ABSTRACT: FAServer arrives ready to run, with a real-time operating system kernel, while the unique WAFL (Write Anywhere File Layout) file system boosts disk I/O, reliability and performance. The server's RAID Level 4...

19940500

5/K/22 (Item 4 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01648871 SUPPLIER NUMBER: 15388354
Plug-and-go file server. (Network Appliance Corp. FAServer) (Hardware Review) (Evaluation)
Dawson, Bruce
Byte, v19, n6, p227(3)
June, 1994
DOCUMENT TYPE: Evaluation ISSN: 0360-5280 LANGUAGE: ENGLISH
RECORD TYPE: ABSTRACT

...ABSTRACT: The server supports RAID Level 4 redundancy and runs a proprietary embedded operating system. Its Write Anywhere File Layout (WAFL) file system can be written anywhere to disk, overcoming performance bottlenecks in many RAID-4...

19940600

5/K/23 (Item 5 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01604882 SUPPLIER NUMBER: 13922015 (USE FORMAT 7 OR 9 FOR FULL TEXT)
File server appliance. (Network Appliance Corp.'s FAServer) (Brief Article) (Product Announcement)
LAN Computing, v4, n6, p46(1)
June, 1993

FAServer provides a real-time kernel; UNIX-like command user interface; Write Anywhere File Layout file system; online Snapshot manager, which provides every user with an automatic backup and file...

19930600

5/K/24 (Item 6 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)
(c) 2002 The Gale Group. All rts. reserv.

01441034 SUPPLIER NUMBER: 10824936 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Why programming is hard.
May, Jules
EXE, v5, n11, p56(3)
May, 1991
ISSN: 0268-6872 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 3022 LINE COUNT: 00232

... APL, and FORTRAN if you must).
* Arithmetic (COBOL).
* The Dataflow (Yourdon and Lucid).
* The Function (WAFL, Miranda, and others).
* The Fact (Prolog).
* The String (AWK and Brief).
* The Great-big-thing...

19910500

5/K/25 (Item 1 from file: 624)
DIALOG(R)File 624:McGraw-Hill Publications
(c) 2002 McGraw-Hill Co. Inc. All rts. reserv.

0568420
PCFile-Server Power: Network Appliance Corp.'s FAServer brings a ton of
PC muscle to NFS networking
Open Computing May, 1994; Pg 83; Vol. 11, No. 5
Journal Code: UNIX ISSN: 0739-5922
Section Heading: PRODUCT REVIEW
Word Count: 2,651 *Full text available in Formats 5, 7 and 9*

BYLINE:
Tom Yager

TEXT:
...View, CA 94043
415-428-5100

Pros: Quick setup and boot; excellent NFS performance; unique WAFL file system

Cons: No serial console; no local backup capability; limited to one telnet session...
... disks in the standard configuration, and you can add seven more with an expansion cabinet.

WAFL and RAID

No matter how many disks you attach to your FAServer, the system sees...

... structure of the file system is unique to the FAServer. NAC calls its file system WAFL, short for Write Anywhere File Layout. WAFL optimizes disk I/O for RAID and enhances the system's reliability and performance.

The "Write Anywhere" in WAFL comes from the file system's lack of fixed data areas. Most Unix file systems rely on superblocks, inodes, and allocation tables in well-known locations. With WAFL, this data is stored in files that can be located anywhere in the RAID space...

...system for it. It gets tacked onto the end of the RAID cluster, and the WAFL structures adapt to accommodate it.

The FAServer boots from powered down to a fully online state in about 30 seconds. WAFL is designed to eliminate the need for time-consuming integrity checks (fsck) following an untidy...on storage capacity. You can expand the system's inode limit at any time; the WAFL file system accommodates the change instantly.

After booting, the FAServer's primary point of control...

1994

5/K/26 (Item 2 from file: 624)
DIALOG(R)File 624:McGraw-Hill Publications
(c) 2002 McGraw-Hill Co. Inc. All rts. reserv.

0563396
Sharing the Secrets of NFS File Servers
Unix World's Open Computing April, 1994; Pg 89; Vol. 11, No. 4
Journal Code: UNIX ISSN: 0739-5922
Section Heading: HOW TO BUY
Word Count: 2,536 *Full text available in Formats 5, 7 and 9*

BYLINE:
Juli Cortino

TEXT:
... heart of which is an Intel Corp. 486DX 50-MHz microprocessor. Unique features include the Write Anywhere File Layout (WAFL) file system; Snapshot, a facility offering an online read-only copy of the entire file...

1994

5/K/27 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online
(c) 2002 ProQuest Info&Learning. All rts. reserv.

01377710 ORDER NO: AAD94-26840
CELLULAR GENES MODULATED BY P53 PROTEIN (TRANSCRIPTION, CELL CYCLE)
Author: LIN, DAVID HUA
Degree: PH.D.
Year: 1994
Corporate Source/Institution: THOMAS JEFFERSON UNIVERSITY (0272)
Source: VOLUME 55/06-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 2093. 146 PAGES

Year: 1994

...also able to transactivate the expression of WAF1/CIP1 gene. The latter encodes a protein (Waf1 /Cip1) which was independently shown to be a potent inhibitor of cyclin-dependent kinase (Cdk...

5/K/28 (Item 1 from file: 233)
DIALOG(R)File 233:Internet & Personal Comp. Abs.
(c) 2002 Info. Today Inc. All rts. reserv.

00349266 94UO05-007
PC file-server power -- Network Appliance Corp.'s FAServer brings a ton of PC muscle to NFS networking
Yager, Tom
(UNIX World's) Open Computing , May 1, 1994 , v11 n5 p83-87, 5 Page(s)
ISSN: 1072-4044
Company Name: Network Appliance
Product Name: FAServer

... 1G hard disks, RAID level 4, quick set-up and booting, excellent performance, and the WAFL file system; but has no serial console, no backup capability, and is limited to one...

1994
?ds

| Set | Items | Description |
|-----|-------|--|
| S1 | 343 | WAFL |
| S2 | 143 | WRITE (W) ANYWHERE (W) FILE (W) LAYOUT |
| S3 | 389 | S1 OR S2 |
| S4 | 263 | RD (unique items) |
| S5 | 28 | S4 AND PY<1995 |
| ? | | |

09/954522

| | Type | Hits | Search Text | DBs | Time Stamp v |
|----|------|-------|--|--|------------------|
| 1 | BRS | 7 | ("5604862" "5649152" "5819292" "5835953" "5963962" "6138126" "6289356").pn. | USPAT; US-PGPUB | 2003/05/13 09:14 |
| 2 | BRS | 268 | nishigaki.in. | USPAT; US-PGPUB | 2003/05/12 15:43 |
| 3 | BRS | 15 | episode adj file adj system | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 4 | BRS | 1 | 4043871.pn. | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 5 | BRS | 1 | 4043881.pn. | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 6 | BRS | 114 | "copy on write" or "copy-on-write" | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/10/03 11:53 |
| 7 | BRS | 14370 | cow or ("copy on write" or "copy-on-write") | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/10/03 11:52 |
| 8 | BRS | 4 | episode and (fileset adj clon\$3) | USPAT; US-PGPUB | 2002/10/02 13:26 |
| 9 | BRS | 76 | white adj sewing | USOCR | 2002/09/30 17:42 |
| 10 | BRS | 34 | (file adj system) and inode\$1 | US-PGPUB | 2002/09/30 17:11 |
| 11 | BRS | 12 | hitz.in. | US-PGPUB | 2002/09/30 17:10 |
| 12 | BRS | 4 | hitz.in. and (root adj node) | USPAT; US-PGPUB | 2002/09/30 16:57 |
| 13 | BRS | 65 | hitz.in. | USPAT; US-PGPUB | 2002/09/30 16:57 |
| 14 | BRS | 8 | inode and (block adj map) | USPAT; US-PGPUB | 2002/05/17 08:10 |
| 15 | BRS | 196 | inode | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 16 | BRS | 3 | inode and blockmap | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 17 | BRS | 58 | snapshot and database and (checkpoint or (consistency adj point)) | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 18 | BRS | 1 | 5369757.pn. | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 19 | BRS | 1112 | snapshot and database | USPAT; US-PGPUB | 2002/05/16 18:24 |
| 20 | BRS | 1 | 5454099.pn. | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 21 | BRS | 3733 | snapshot | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 22 | BRS | 1 | (mapping and vm and text and aix).ti. | IBM_TDB | 2002/05/16 16:52 |
| 23 | BRS | 1 | (migrated and data and backup).ti. | IBM_TDB | 2002/05/16 16:52 |
| 24 | BRS | 10 | ("6070172" "5603020" "5737763" "4399503" "4887151" "5237460" "5394534" "5455947" "5544356" "5592669").pn. | USPAT; US-PGPUB | 2002/05/16 16:50 |
| 25 | BRS | 10 | ("5634122" "5930503" "6269480" "6330572" "6332219" "6347397" "6374401" "4758906" "4922352" "5604906").pn. | USPAT; US-PGPUB | 2002/05/16 16:28 |

| | Type | Hits | Search Text | DBs | Time Stamp v |
|----|------|-------------|--|--|------------------|
| 26 | BRS | 10 | ("4362127" "5483921" "5821933" "6135055" "6318289" "5426699" "5550965" "5631693" "6370511" "4930447").pn. | USPAT; US-PGPUB | 2002/05/16 16:26 |
| 27 | BRS | 8 | ("5778212" "5802297" "5875238" "6016393" "6170060" "6223186" "6226511" "6223186" "6226511" "6246655").pn. | USPAT; US-PGPUB | 2002/05/16 16:25 |
| 28 | BRS | 10 | ("5963962" "5819292" "6289356" "5761678" "5812855" "6205450" "5410676" "5471606" "5603031" "5732127").pn. | USPAT; US-PGPUB | 2002/05/16 16:23 |
| 29 | BRS | 43 | phase adj tree | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM TDB | 2002/05/16 14:49 |
| 30 | BRS | 0 | (phase adj tree) and metaroot | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM TDB | 2002/05/16 14:17 |
| 31 | BRS | 5 | ("5043876" "5043871" "5163148").pn. | USPAT; US-PGPUB; EPO | 2002/05/16 14:14 |
| 32 | BRS | 1 | 5448718.pn. | USPAT; US-PGPUB; EPO | 2002/05/16 13:53 |
| 33 | BRS | 0 | 5448718.pn. | EPO | 2002/05/16 13:51 |
| 34 | BRS | 0 | "EP 566967 A".did. | EPO | 2002/05/16 13:50 |
| 35 | BRS | 335437 4 | EP "566967" A.did. | EPO | 2002/05/16 13:50 |
| 36 | BRS | 0 | "EP 0566967 A1".did. | EPO | 2002/05/16 13:49 |
| 37 | BRS | 0 | "EP 566967 A1".did. | EPO | 2002/05/16 13:49 |
| 38 | BRS | 0 | "EP 0566967 A".did. | EPO | 2002/05/16 13:48 |
| 39 | BRS | 0 | EP93566967 | EPO | 2002/05/16 13:48 |
| 40 | BRS | 85 | ibm and (file adj system) | EPO | 2002/05/16 13:47 |

| | Type | Hits | Search Text | DBs | Time Stamp v |
|----|------|---------|---|-----------------|------------------|
| 41 | BRS | 3354374 | EP "0566967" A.did. | EPO | 2002/05/16 13:43 |
| 42 | BRS | 0 | "EP_0566967_A".did. | EPO | 2002/05/16 13:43 |
| 43 | BRS | 26028 | ibm | EPO | 2002/05/16 13:43 |
| 44 | BRS | 0 | 0566967A | EPO | 2002/05/16 13:42 |
| 45 | BRS | 0 | "EP 0566967_A".did. | EPO | 2002/05/16 13:42 |
| 46 | BRS | 0 | srinivasan.in. and recover\$4 and (file adj system) | USPAT; US-PGPUB | 2002/05/16 13:41 |
| 47 | BRS | 693 | srinivasan.in. | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 48 | BRS | 156 | srinivasan.in. and recover\$4 | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 49 | BRS | 3 | ("5146588" "5335235" "5642501").pn. | USPAT; US-PGPUB | 2002/05/16 13:34 |
| 50 | BRS | 38 | consistency adj point | USPAT; US-PGPUB | 2002/05/16 13:33 |
| 51 | BRS | 57 | hitz.in. | USPAT; US-PGPUB | 2002/05/16 13:10 |
| 52 | BRS | 65 | kleiman.in. | USPAT; US-PGPUB | 2002/05/16 11:56 |
| 53 | BRS | 51 | kleinman.in. | USPAT; US-PGPUB | 2002/05/16 11:55 |
| 54 | BRS | 0 | ("2001/0039622" "2002/0007470").pn. | USPAT; US-PGPUB | 2002/05/16 11:54 |
| 55 | BRS | 0 | ("39622" "7470").pn. | USPAT; US-PGPUB | 2002/05/16 11:53 |

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| | Hits | Search Text | DBs | Time Stamp ▾ |
|----|-------|--|--|------------------|
| 1 | 30 | 714/15-20.ccls. and (file adj system\$1) and snapshot\$1 | USPAT; US-PGPUB | 2003/11/17 16:45 |
| 2 | 171 | 714/15-20.ccls. and (file adj system\$1) | USPAT; US-PGPUB | 2003/11/17 16:44 |
| 3 | 102 | 707/201-204.ccls. and (file adj system\$1) and (snapshot) | USPAT; US-PGPUB | 2003/11/17 16:40 |
| 4 | 2400 | 707/201-204.ccls. | USPAT; US-PGPUB | 2003/11/17 16:37 |
| 5 | 684 | 707/201-204.ccls. and (file adj system\$1) | USPAT; US-PGPUB | 2003/11/17 16:37 |
| 6 | 13 | hitz.in. and waf1 | USPAT; US-PGPUB | 2003/11/17 16:36 |
| 7 | 7 | ("5604862" "5649152" "5819292" "5835953" "5963962" "6138126" "6289356").pn. | USPAT; US-PGPUB | 2003/05/13 09:14 |
| 8 | 268 | nishigaki.in. | USPAT; US-PGPUB | 2003/05/12 15:43 |
| 9 | 15 | episode adj file adj system | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 10 | 1 | 4043871.pn. | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 11 | 1 | 4043881.pn. | USPAT; US-PGPUB | 2003/05/12 15:42 |
| 12 | 114 | "copy on write" or "copy-on-write" | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/10/03 11:53 |
| 13 | 14370 | cow or ("copy on write" or "copy-on-write") | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/10/03 11:52 |
| 14 | 4 | episode and (fileset adj clon\$3) | USPAT; US-PGPUB | 2002/10/02 13:26 |
| 15 | 76 | white adj sewing | USOCR | 2002/09/30 17:42 |
| 16 | 34 | (file adj system) and inode\$1 | US-PGPUB | 2002/09/30 17:11 |
| 17 | 12 | hitz.in. | US-PGPUB | 2002/09/30 17:10 |
| 18 | 4 | hitz.in. and (root adj node) | USPAT; US-PGPUB | 2002/09/30 16:57 |
| 19 | 65 | hitz.in. | USPAT; US-PGPUB | 2002/09/30 16:57 |
| 20 | 8 | inode and (block adj map) | USPAT; US-PGPUB | 2002/05/17 08:10 |
| 21 | 196 | inode | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 22 | 3 | inode and blockmap | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 23 | 58 | snapshot and database and (checkpoint or (consistency adj point)) | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 24 | 1 | 5369757.pn. | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 25 | 1112 | snapshot and database | USPAT; US-PGPUB | 2002/05/16 18:24 |
| 26 | 1 | 5454099.pn. | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 27 | 3733 | snapshot | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 28 | 1 | (mapping and vm and text and aix).ti. | IBM_TDB | 2002/05/16 16:52 |
| 29 | 1 | (migrated and data and backup).ti. | IBM_TDB | 2002/05/16 16:52 |
| 30 | 10 | ("6070172" "5603020" "5737763" "4399503" "4887151" "5237460" "5394534" "5455947" "5544356" "5592669").pn. | USPAT; US-PGPUB | 2002/05/16 16:50 |

| | Hits | Search Text | DBs | Time Stamp ▾ |
|----|------|---|--|------------------|
| 31 | 10 | "5634122" "5930503" "6269480" "6330572" "6332219" "6347397" "6374401" "4758906" "4922352" "5604906").pn. | USPAT; US-PGPUB | 2002/05/16 16:28 |
| 32 | 10 | "4362127" "5483921" "5821933" "6135055" "6318289" "5426699" "5550965" "5631693" "6370511" "4930447").pn. | USPAT; US-PGPUB | 2002/05/16 16:26 |
| 33 | 8 | "5778212" "5802297" "5875238" "6016393" "6170060" "6223186" "6226511" "6223186" "6226511" "6246655").pn. | USPAT; US-PGPUB | 2002/05/16 16:25 |
| 34 | 10 | "5963962" "5819292" "6289356" "5761678" "5812855" "6205450" "5410676" "5471606" "5603031" "5732127").pn. | USPAT; US-PGPUB | 2002/05/16 16:23 |
| 35 | 43 | phase adj tree | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/05/16 14:49 |
| 36 | 0 | (phase adj tree) and metaroot | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/05/16 14:17 |
| 37 | 5 | ("5043876" "5043871" "5163148").pn. | USPAT; US-PGPUB; EPO | 2002/05/16 14:14 |

| | Hits | Search Text | DBs | Time Stamp ▾ |
|----|-------------|---|-------------------------|------------------|
| 38 | 1 | 5448718.pn. | USPAT; US-PGPUB; EPO | 2002/05/16 13:53 |
| 39 | 0 | 5448718.pn. | EPO | 2002/05/16 13:51 |
| 40 | 0 | "EP 566967 A".did. | EPO | 2002/05/16 13:50 |
| 41 | 33543 74 | EP "566967" A.did. | EPO | 2002/05/16 13:50 |
| 42 | 0 | "EP 0566967 A1".did. | EPO | 2002/05/16 13:49 |
| 43 | 0 | "EP 566967 A1".did. | EPO | 2002/05/16 13:49 |
| 44 | 0 | "EP 0566967 A".did. | EPO | 2002/05/16 13:48 |
| 45 | 0 | EP93566967 | EPO | 2002/05/16 13:48 |
| 46 | 85 | ibm and (file adj system) | EPO | 2002/05/16 13:47 |
| 47 | 33543 74 | EP "0566967" A.did. | EPO | 2002/05/16 13:43 |
| 48 | 0 | "EP_0566967_A".did. | EPO | 2002/05/16 13:43 |
| 49 | 26028 | ibm | EPO | 2002/05/16 13:43 |
| 50 | 0 | 0566967A | EPO | 2002/05/16 13:42 |
| 51 | 0 | "EP 0566967_A".did. | EPO | 2002/05/16 13:42 |
| 52 | 0 | srinivasan.in. and recover\$4 and (file adj system) | USPAT; US-PGPUB | 2002/05/16 13:41 |
| 53 | 693 | srinivasan.in. | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 54 | 156 | srinivasan.in. and recover\$4 | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 55 | 3 | ("5146588" "5335235" "5642501").pn. | USPAT; US-PGPUB | 2002/05/16 13:34 |
| 56 | 38 | consistency adj point | USPAT; US-PGPUB | 2002/05/16 13:33 |
| 57 | 57 | hitz.in. | USPAT; US-PGPUB | 2002/05/16 13:10 |
| 58 | 65 | kleiman.in. | USPAT; US-PGPUB | 2002/05/16 11:56 |
| 59 | 51 | kleinman.in. | USPAT; US-PGPUB | 2002/05/16 11:55 |
| 60 | 0 | ("2001/0039622" "2002/0007470").pn. | USPAT; US-PGPUB | 2002/05/16 11:54 |
| 61 | 0 | ("39622" "7470").pn. | USPAT; US-PGPUB | 2002/05/16 11:53 |

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| | Type | Hits | Search Text | DBs | Time Stamp |
|----|------|---------|--|--|------------------|
| 1 | BRS | 7 | ("5604862" "5649152" "5819292" "5835953" "5963962" "6138126" "6289356").pn. | USPAT; US-PGPUB | 2002/05/17 08:04 |
| 2 | BRS | 0 | ("39622" "7470").pn. | USPAT; US-PGPUB | 2002/05/16 11:53 |
| 3 | BRS | 0 | ("2001/0039622" "2002/0007470").pn. | USPAT; US-PGPUB | 2002/05/16 11:54 |
| 4 | BRS | 51 | kleinman.in. | USPAT; US-PGPUB | 2002/05/16 11:55 |
| 5 | BRS | 65 | kleiman.in. | USPAT; US-PGPUB | 2002/05/16 11:56 |
| 6 | BRS | 57 | hitz.in. | USPAT; US-PGPUB | 2002/05/16 13:10 |
| 7 | BRS | 38 | consistency adj point | USPAT; US-PGPUB | 2002/05/16 13:33 |
| 8 | BRS | 3 | ("5146588" "5335235" "5642501").pn. | USPAT; US-PGPUB | 2002/05/16 13:34 |
| 9 | BRS | 693 | srinivasan.in. | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 10 | BRS | 156 | srinivasan.in. and recover\$4 | USPAT; US-PGPUB | 2002/05/16 13:35 |
| 11 | BRS | 0 | srinivasan.in. and recover\$4 and (file adj system) | USPAT; US-PGPUB | 2002/05/16 13:41 |
| 12 | BRS | 0 | 0566967A | EPO | 2002/05/16 13:42 |
| 13 | BRS | 3354374 | EP "0566967" A.did. | EPO | 2002/05/16 13:43 |
| 14 | BRS | 0 | "EP 0566967 A".did. | EPO | 2002/05/16 13:48 |
| 15 | BRS | 0 | "EP 0566967_A".did. | EPO | 2002/05/16 13:42 |
| 16 | BRS | 0 | "EP_0566967_A".did. | EPO | 2002/05/16 13:43 |
| 17 | BRS | 26028 | ibm | EPO | 2002/05/16 13:43 |
| 18 | BRS | 85 | ibm and (file adj system) | EPO | 2002/05/16 13:47 |
| 19 | BRS | 0 | EP93566967 | EPO | 2002/05/16 13:48 |
| 20 | BRS | 0 | "EP 0566967 A1".did. | EPO | 2002/05/16 13:49 |
| 21 | BRS | 0 | "EP 566967 A1".did. | EPO | 2002/05/16 13:49 |
| 22 | BRS | 0 | "EP 566967 A".did. | EPO | 2002/05/16 13:50 |
| 23 | BRS | 3354374 | EP "566967" A.did. | EPO | 2002/05/16 13:50 |
| 24 | BRS | 0 | 5448718.pn. | EPO | 2002/05/16 13:51 |
| 25 | BRS | 1 | 5448718.pn. | USPAT; US-PGPUB; EPO | 2002/05/16 13:53 |
| 26 | BRS | 5 | ("5043876" "5043871" "5163148").pn. | USPAT; US-PGPUB; EPO | 2002/05/16 14:14 |
| 27 | BRS | 0 | (phase adj tree) and metaroot | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/05/16 14:17 |
| 28 | BRS | 43 | phase adj tree | USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB | 2002/05/16 14:49 |
| 29 | BRS | 10 | ("5963962" "5819292" "6289356" "5761678" "5812855" "6205450" "5410676" "5471606" "5603031" "5732127").pn. | USPAT; US-PGPUB | 2002/05/16 16:23 |

| | Type | Hits | Search Text | DBs | Time Stamp |
|----|------|------|--|-----------------|------------------|
| 30 | BRS | 8 | "5778212" "5802297" "5875238" "6016393" "6170060" "6223186" "6226511" "6223186" "6226511" "6246655").pn. | USPAT; US-PGPUB | 2002/05/16 16:25 |
| 31 | BRS | 10 | ("4362127" "5483921" "5821933" "6135055" "6318289" "5426699" "5550965" "5631693" "6370511" "4930447").pn. | USPAT; US-PGPUB | 2002/05/16 16:26 |
| 32 | BRS | 10 | ("5634122" "5930503" "6269480" "6330572" "6332219" "6347397" "6374401" "4758906" "4922352" "5604906").pn. | USPAT; US-PGPUB | 2002/05/16 16:28 |
| 33 | BRS | 10 | ("6070172" "5603020" "5737763" "4399503" "4887151" "5237460" "5394534" "5455947" "5544356" "5592669").pn. | USPAT; US-PGPUB | 2002/05/16 16:50 |
| 34 | BRS | 1 | (mapping and vm and text and aix).ti. | IBM_TDB | 2002/05/16 16:52 |
| 35 | BRS | 1 | (migrated and data and backup).ti. | IBM_TDB | 2002/05/16 16:52 |
| 36 | BRS | 1 | 5454099.pn. | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 37 | BRS | 3733 | snapshot | USPAT; US-PGPUB | 2002/05/16 18:23 |
| 38 | BRS | 1112 | snapshot and database | USPAT; US-PGPUB | 2002/05/16 18:24 |
| 39 | BRS | 58 | snapshot and database and (checkpoint or (consistency adj point)) | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 40 | BRS | 1 | 5369757.pn. | USPAT; US-PGPUB | 2002/05/16 18:33 |
| 41 | BRS | 196 | inode | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 42 | BRS | 3 | inode and blockmap | USPAT; US-PGPUB | 2002/05/17 08:05 |
| 43 | BRS | 8 | inode and (block adj map) | USPAT; US-PGPUB | 2002/05/17 08:10 |